

QUEUING AND ROSETTE MOLTING
IN *AUTOMERIS IO*
(LEPIDOPTERA: SATURNIIDAE)¹

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During studies on venomous caterpillars in Florida, some remarkable aspects of the behavior of larval *Automeris io* Fabricius (Lepidoptera: Saturniidae) were observed. Although the purpose of the original research was to obtain information on the dermatitis-producing irritant associated with these larvae, in order to have an unlimited number of caterpillars available at all times, it was important to thoroughly understand the life cycle and colony complexities of *A. io*. In this way, two interesting behavior patterns came to light and are reported here.

A. io chalk-white eggs are deposited in upright clusters of 20-35 or more, usually on the underside of foliage (Peterson, 1965). Under optimum conditions (at least 75° F.) the eggs hatch in approximately 8-11 days. Newly hatched larvae are 3-4 mm in length and reddish-brown in color. Immediately after hatching, the larvae eat the empty egg shells, still attached to the leaf. Soon afterward, the tips of the prominent dermatitis-producing larval spines turn black.

¹Accepted for publication: March 9, 1972

²This research was supported by the U.S. Department of Health, Education and Welfare, Public Health Service Research Fellowships 1-FO1-GM 42-902-01, and 5-FO1-GM 42-902-02, National Institute of General Medical Sciences.

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Several hours after hatching, the first group behavior, queuing (Herrnkind, 1969) or trailing, can be observed (Figure 1). As many as 40 young larvae will trail, with each "trailer" keeping its head against the posterior end of the preceding larva. The "trailer" constantly lifts and extends its head, first to one side and then to the other of the caudal end of the larva in front of it, seemingly to confirm its own position as a follower.

At times the trailing was unbroken for hours around the inner surface of a cylindrical container, until a leader was diverted to foliage by means of blocks and hurdles.

Mass queuing behavior decreases as the size of the larvae increases. However, double and triple trailing is not unusual in even large (3-5 cm) 4th and 5th instars.

A second behavioral oddity is rosette molting. Prior to the first molt (approximately 7 days after hatching), caterpillars huddle into a rosette on a leaf, typically with anterior ends toward the outside, and posteriors toward the inside (Figure 2). As molting progresses, the exuviae are left in the center of the rosette until the caterpillars turn around to devour the cast-off skins (Figure 3).

One might assume this to be a defense mechanism, since collectively, the members of a rosette pattern may be a more formidable deterrent to predators than single larvae. By the third molt, probably because of the increase in larval size, the tendency for protective rosette molting to occur, decreases. However, even in the later molts, the exuviae are usually eaten (with the exception of the hard head capsule).

LITERATURE CITED

- PETERSON, A. 1965. Some eggs of moths among the Sphingidae, Saturniidae. Fla. Ent., 48:213-220.
HERRNKIND, W. 1969. Queuing behavior of spiny lobsters. Sci., 164:1425-7.

ABSTRACT: Two unusual types of behavior are described for *Automeris io* Fabricius (Lepidoptera, Saturniidae) larvae: queuing (trailing) and rosette molting. The venomous larvae are gregarious, which may be a defense mechanism.

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Figure 1. *Automeris io* larvae, queuing.



Figure 2. Group of larvae resting in a rosette form, prior to molting.



Figure 3. Newly-molted larvae beginning to devour the cast-off exuviae. Notice the rosette design of exuviae.